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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/806,547

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Chiaki Aoyama

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CARRIER BLACKMAN AND ASSOCIATES

24101 NOVI ROAD

SUITE 100

NOVI, MI 48375

EXAMINER

RASHID, DAVID

ART UNIT

PAPER NUMBER

2624

NOTIFICATION DATE

DELIVERY MODE

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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/806,547	Applicant(s) AOYAMA, CHIAKI	
	Examiner DAVID P. RASHID	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,7 and 10-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 and 10-12 is/are allowed.
- 6) ☒ Claim(s) 2-5,7,13 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

[1] All of the examiner's suggestions presented herein below have been assumed for examination purposes, unless otherwise noted.

Amendments

[2] This office action is responsive to the claim amendment received on March 11, 2008. Claims 1-6, 7, and 10-14 remain pending.

Claim Rejections - 35 USC § 102

[3] The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

[4] **Claims 2-3, 5, 7 and 13-14** are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pub. No. 2002/0196422 (filed Jun. 7, 2002) (published Dec. 26, 2002) *hereinafter* "Tanabata et al.".

Regarding **Claim 2**, *Tanabata et al.* discloses a method for measuring a position of an object (fig. 1, ¶ 0028) with a combination of an image of the object captured by a camera unit (fig. 1, fig. 10A, item 200) and calibration information (fig. 9), the calibration information being prepared in advance in such a manner that a position of a measurement pixel of the image is

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correlated with a direction of an incident beam of light (dashed lines in fig. 1; fig. 1, item 350; ¶0042, fig. 9, fig. 10) and a displacement from a reference point (*e.g.*, fig. 2b, element 122b) to the incident beam (fig. 10, item d), the method comprising the steps of:

- (a) incorporating the image (fig. 1, items 310, 330);
- (b) detecting a position of a pixel representative of the object in the image incorporated at step (a) (fig. 10b, items 52a, 52b, d); and
- (c) calculating the position of the object according to the direction and the displacement of the incident beam (fig. 1, item 350; ¶ 0041), which are obtained from the calibration information with reference to the position of the pixel detected at step (b) (fig. 9, ¶ 0042)

wherein the displacement of the incident beam of light relative to the reference point (*e.g.*, fig. 2b, element 122b) is a discrepancy of the incident beam of light relative to an optical center of a lens of the camera unit (¶ 0054 where item 122a of fig. 2a represents the optical center of the lens that is “relative” to the calculated displacements); and

wherein said discrepancy is a minimum distance between the optical center and said incident beam of light (the discrepancy (*i.e.* the distance between the two arrows touching item 241 in fig. 1) is the minimum distance between the optical center (*i.e.* the beam of light through the center of the lens item 210) and said incident beam of light (*i.e.* the offset beam of light through the lens item 210); this is a pure geometric problem and though the discrepancy “distance” between said incident beam of light and optical center in the actual lens may be different than the discrepancy “distance” on item 241, the discrepancy “distance” on item 241 is optimally calculated as the direct discrepancy of which is occurring inside the lens 210 between the minimal distance of said incident beam of light and the optical center).

Regarding **Claim 3**, *Tanabata et al.* discloses an apparatus for measuring a position of an object (fig. 1, ¶ 0028) according to an image of the object captured by a camera unit (fig. 1, item 310; fig. 10A, item 200), the apparatus comprising:

an image input means (fig. 1, items 310, 330) for incorporating the image;

a pixel position detection means (fig. 10b, items 52a, 52b, d) for detecting a position of a pixel representative of the object in the image incorporated by the image input means;

a storage means (fig. 1, item 350; ¶ 0042) for storing calibration information which correlates the position of the pixel with both a direction of an incident beam of light originating from the object (fig. 9, y-axis) and a displacement from a reference point to the incident beam (fig. 9, x-axis); and

a position calculation means (fig. 1, item 350) for calculating the position of the object according to the direction (fig. 10A shows varying horizontal positions to the fixed camera 200) and the displacement of the incident beam (¶ 0041), which are derived from the calibration information with reference to the position of the pixel detected by the pixel position detection means (“interpolation calculation” in ¶ 0049);

wherein said displacement of the incident beam indicates discrepancy of the incident beam of light penetrating a lens system (fig. 1, item 210) of the camera unit relative to the optical center of the lens system (¶ 0054 where item 122a of fig. 2a represents the optical center of the lens that is “relative” to the calculated displacements); and

wherein said discrepancy is a minimum distance between the optical center of the lens system and said incident beam of light (the discrepancy (*i.e.* the distance between the two arrows touching item 241 in fig. 1) is the minimum distance between the optical center (*i.e.* the beam of

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light through the center of the lens item 210) and said incident beam of light (*i.e.* the offset beam of light through the lens item 210); this is a pure geometric problem and though the discrepancy “distance” between said incident beam of light and optical center in the actual lens may be different than the discrepancy “distance” on item 241, the discrepancy “distance” on item 241 is optimally calculated as the direct discrepancy of which is occurring inside the lens 210 between the minimal distance of said incident beam of light and the optical center).

Regarding **Claim 5**, *Tanabata et al.* discloses the apparatus according to Claim 3, wherein the pixel position detection means (fig. 10b, items 52a, 52b, d) detects the position of the pixel representative of the object (§ 0044) have a marker (fig. 10a, item 51; fig. 10b, item 52) identifying a typical spot of the object.

Regarding **Claim 7**, Claim 2 recites identical features as in the computer program for a computer used for an apparatus of Claim 7 (§ 0039). Thus, references/arguments equivalent to those presented above for Claim 2 is equally applicable to Claim 7, including wherein said incident beam of light (dashed lines in fig. 1) is directly projected (the direction of the dashed arrow in fig. 1 which is the incident beam of light shows the direction of the incident beam of light from the object to the lens system) from the object (fig. 1, § 0028) to a lens system (fig. 1, item 210) of the camera unit (fig. 1, fig. 10a, item 200);

and wherein said reference point is an optical center of the lens system (then center of lens 210 in fig. 1 is the optical center).

Regarding **Claim 13**, *Tanabata et al.* discloses a method according to Claim 2, wherein the camera unit (fig. 1, item 200) is adapted (the camera unit is “adapted” to be positioned on an

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automobile since it is capable of being placed on top of an automobile it is hence “adapted”) to be positioned on an automobile.

Regarding **Claim 14**, Claim 13 recites identical features as in Claim 14. Thus, references/arguments equivalent to those presented above for Claim 13 are equally applicable to Claim 14.

Claim Rejections - 35 USC § 103

[5] The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

[6] **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination between *Tanabata et al.* in view of U.S. Patent No. 4,639,878 (issued Jan. 27, 1987) [*hereinafter* “Day et al.”].

Regarding **Claim 4**, while *Tanabata et al.* discloses the apparatus according to Claim 3, *Tanabata et al.* does not teach wherein the camera unit comprises cameras in sets of at least two so as to take a plurality of images and the storage means stores the calibration information for each camera.

Day et al. discloses a system for automatically determining the position and attitude of an object (fig. 3) wherein the camera unit comprises cameras in sets of at least two (fig. 3, item 26)

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so as to take a plurality of images (6:65-66) and the storage means (fig. 3, item 42) stores the calibration information for each camera (8:20-24).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the apparatus of *Tanabata et al.* to include the camera unit comprising cameras in sets of at least two so as to take a plurality of images as taught by *Day et al.* "...for automatically determining the position and attitude of a three-dimensional body...", *Day et al.*, 3:66-68 and the storage means storing the calibration information for each camera as taught by *Day et al.* for the computer 40 to access the information from the mass storage 42 for calculation purposes.

Allowable Subject Matter

[7] **Claims 1 and 10-12** allowed.

Response to Arguments

[8] Applicant's arguments filed on March 11, 2008 with respect to Claims 2-5, 7, and 14 have been respectfully and fully considered, but they are not found persuasive.

[9] Summary of Remarks regarding Claims 2-5, 7, and 14:

Applicant argues that each of independent claims 2-3 and 7 have been amended to include such limitations, e.g., a discrepancy being a minimum distance between the optical center and said incident beam of light, and that the total combination each of these claims is not taught or rendered obvious by the reference of record, considered either singly or in combination. (Applicant Resp. at 13, March 11, 2008.)

Applicant argues that claims 4, 5 and 14, each depending from claim 3, and claim 13 depending from claim 2 are believed to patentably distinct over the references of record for the reasons provided in relation to claims 2 and 3. (Resp. at 13.)

Applicant argues that the rejection is overcome and that claim 4 is patentably distinct over the applied references for the reasons stated in relation to claim 3, and further because whether considered singly or in combination thereof, the applied references fail to make the claimed. (Resp. at 14.)

[10] Examiner's Response regarding Claims 2-5, 7, and 14:

Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

However for better understand, the *Tanabata et al.* discloses the newly added limitations that pose a pure geometrical problem. The discrepancy that item 241 collects is a true reflection of the minimum distance between the incident beam of light (the light through item 112b) and the optical center of the lens (as determined by the light through item 112a). Though the discrepancy "distance" between said incident beam of light and optical center in the actual lens may be different than the discrepancy "distance" on item 241, the discrepancy "distance" on item 241 is optimally calculated as the direct discrepancy of which is occurring inside the lens 210 between the minimal distance of said incident beam of light and the optical center.

Conclusion

[11] Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

[12] Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID P. RASHID whose telephone number is (571)270-1578. The examiner can normally be reached Monday - Friday 7:30 - 17:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571) 272-74155. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David P. Rashid/
Examiner, Art Unit 2624

David P Rashid
Examiner
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